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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

YEE, DEBORAH

ART UNIT

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1793

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,664	Applicant(s) USAMI ET AL.	
	Examiner Deborah Yee	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-9,18-25,28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,18-25,28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/6/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on July 6, 2010 has been entered.
2. Allowability of claims 1, 3 to 9, 18 to 25, 28 and 29 has been withdrawn in view of new ground of rejection over prior art cited by Applicant in IDS filed July 6, 2010.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. Claims 1, 3 to 9, 18 to 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the machine-English translation of Japanese patent 2001-288512 to Toshinaga et al. ("JP'512") alone or in view of US Patent 3,733,195 to Nishi ("US'195").
5. JP'512 discloses steel plate example 4 in table 1 having a composition that meets claims 1, 4, 5, 7, 18, 21, 22 and 28 and having a $C_{eq} = 0.4046$ that closely approximates the claimed C_{eq} of 0.4% or less in claim 3.

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6. Example 4 does not contain Mg, Ca, Y, La or Ce in small amounts as set forth in one or more of the dependent claims of the present application but it would be obvious for one skilled in the art to incorporate elements since 0.0005 to 0.005% REM (includes Y, La or Ce) and 0.0005 to 0.005%Ca are taught in the general composition of JP'512 in claim 6.

7. Example 4 does not contain Sb, Sn, Pb, As, and Bi in small amounts as set forth in one or more dependent claims. Nonetheless they are conventional steel additives to enhance corrosion resistance in analogous steel plate as evident by US'195 on lines 20 to 60 in column 4 and therefore would be a matter of choice well within the skill of the artisan to incorporate to Example 4.

8. JP'512 does not teach solute Mo + solute W \geq 0.005% as set forth in claims but such property would be expected since composition and its process of making are closely met. Similar to present invention method #2 on page 37 of instant specification, steel plate of JP'512 in claim 2 is made by hot rolling and normalizing by reheating at $A_{c1}+20^{\circ}\text{C}$ to $A_{c3}+150^{\circ}\text{C}$ followed by accelerated cooling at a rate of 1 to 100°C/sec with a stopping temperature in the range of 300 to 600°C .

9. JP'512 does not teach area percentage of microscopic segregation portions where the Mn concentration is 1.2 times or more than the average Mn concentration in the steel plate is 10% or less as set forth in claim 9 but such property would be expected since process of making is closely met. Similar to inventive method # 3 on page 37 of instant specification, hot rolled steel sheet of JP'512 in claim 7 is subjected

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to solution heat treatment at 1150-1300°C for 2 to 48 hours to improve toughness by homogenizing and reducing Mn segregation.

10. JP'512 does not specifically teach using steel to make crude oil tank but it would be an obvious utility since steel exhibits high strength and weldability which are properties desired and sought for such application. Also according to paragraph [0052] of JP'512, steel is manufactured for making welded steel structure such as a pressure vessel which would be equivalent to a container or tank.

11. Claims 1, 3 to 9, 18 to 25, 28 and 29 are rejected under 35 U.S.C. 103 (a) as being unpatentable over the machine-English translation of Japanese patent 10-147839 to Katsumi et al. ("JP'839") in view of European opposition document filed by Aktiengesellschaft der Dillinger Huttenwerke cited by Applicant in IDS filed July 6, 2010 and further in view of Japanese patent 2001-288512 ("JP'512") or US Patent 5,993,570 to Gray ("US'570") or US Patent 3,733,195 to Nishi ("US'195").

12. JP'839 discloses steel plate example 15 in tables 1-3 having a composition and $C_{eq} = 0.168$ that meets claims 1, 3, 4, 5, 7, 18, 21, 22, 28 and 29.

13. Example 5 does not contain Mg, Ca, Y, La or Ce in small amounts as set forth in one or more of the dependent claims of the present application but it would be obvious for one skilled in the art to incorporate elements since 0.0005 to 0.005% REM (includes Y, La or Ce) and 0.0005 to 0.005%Ca are taught in the general composition of JP'839 in claim 4.

14. Example 5 does not contain Sb, Sn, Pb, As, and Bi in small amounts as set forth in one or more dependent claims. Nonetheless said elements are conventional steel

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additives to enhance corrosion resistance in analogous steel plate as evident by US'195 on lines 20 to 60 in column 4 and therefore would be a matter of choice well within the skill of the artisan to incorporate to Example 5.

15. JP'839 does not teach steel characterized by solute Mo + solute W \geq 0.005%.

According to European Opposition document on pages 3 and 4, it states the following in regard to Mo in steel:

Mo is a completely dissolved state in the melt, and even after solidification large parts thereof are solute in the crystal lattice since, for an atomic radius that is comparable to the main steel component Fe, Mo takes the lattice sites of Fe. Consequently, the solubility of Mo in steel is high and poses no problem, in particular in the aforementioned steel of the patent in suit. Since therefore the percentage rate of solute Mo usually is not examined, the dissolving power of Mo in steel is only rarely indicated.

Moreover, the composition of the steel claimed in the patent in suit is selected such that sufficient amounts of the components that are better precipitators than Mo are present or may optionally be added. Since these components, in particular Cu, V and Nb, have a higher affinity to form carbides and nitrides than Mo and consequently, precipitations with these components are first formed, Mo precipitations are rare so that a relatively high amount of Mo always remains dissolved. Moreover, in particular in case of relative thin products, the cooling temperatures are such that a relatively high amount of Mo remains solute.

Base on this teaching, Mo is highly soluble in iron and would not likely precipitate when better precipitators such as Cu, V or Nb are present. Consequently the solubility of a minor amount of 0.005% Mo in example 15 would likely occur since it contains 0.06% Mo with 0.04% V and 0.33% Cu and in absence of evidence (e.g. by comparative test data) to the contrary.

16. JP'839 does not teach area percentage of microscopic segregation portions where the Mn concentration is 1.2 times or more than the average Mn concentration in the steel plate is 10% or less as set forth in claim 9. It is, however, common practice in

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the metallurgical to treat analogous steel plate alloy to reduce Mn segregation to achieve high strength and high toughness and/or resistance to degradation or failure in sour service application, see US'570 on lines 16 to 24 of column 4 and JP'512 in paragraph [0029]. Therefore, it would obvious for one skilled in the art to treat steel of JP'839 to achieve low Mn segregation in view of secondary teachings since high strength and toughness and corrosion resistance would be desired and sought.

17. JP'839 does not specifically teach using steel to make crude oil tank but it would be an obvious utility since prior art plate exhibits high strength and weldability which are properties desired and sought for such application.

18. For the foregoing reasons, claims would not patentably distinguish over prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00 am-2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/
Primary Examiner
Art Unit 1793

/DY/